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AN EARLY EUROPEAN CRITIC OF HOBBS'S *DE CORPORE*

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Abstract

The *Animadversiones in Elementorum Philosophiae* by a little known Flemish scholar G. Moranus, published in Brussels in 1655 was an early European response to Hobbes's *De corpore*. Although it has been referred to by various Hobbes scholars, such as Noel Malcolm, Doug Jesseph, and Alexander Bird it has been little studied. Previous scholarship has tended to focus on the mathematical criticisms of Andre Tacquet which Moranus included in the form of a letter in his volume. Moranus's philosophical objections to Hobbes's natural philosophy offer a fascinating picture of the critical reception of Hobbes's work by a religious writer trained in the late scholastic tradition. Moranus's opening criticism clearly shows that he is unhappy with Hobbes's exclusion of the divine and the immaterial from natural philosophy. He asks what authority Hobbes has for breaking with the common understanding of philosophy, as defined by Cicero 'the knowledge of things human and divine'. He also offers natural philosophical and theological criticisms of Hobbes for overlooking the generation of things involved in the Creation. He also attacks the natural philosophical underpinning of Hobbes's civil philosophy. In this paper I look at a number of philosophical topics which Moranus criticised in Hobbes's work, including his mechanical psychology, his theory of imaginary space, his use of the concept of accidents, his blurring of the distinction between the human being and the animal, and his theories of motion. Moranus's criticisms, which are a mixture of philosophical and theological objections, gives us some clear indications of what made Hobbes' natural philosophy controversial amongst his contemporaries, and sheds new light on the early continental reception of Hobbes's work.

Key Words: *spatium imaginarium*, accidents, mechanical psychology, *minima naturalia*, Thomas Hobbes, Seth Ward, Moranus

On 21 September 1655, just three short months after the first publication of the Latin version of Thomas Hobbes's *De corpore*, a critique of Hobbes's work was published in Brussels by an almost unknown Flemish scholar by the name of Moranus.¹ The *Animadversiones in Elementorum Philosophiae sectionem [primum] De Corpore. Editam A Thoma Hobbes Anglo Malmesburiensi*, is a slim volume of 51 pages, much of which is taken up by the detailed mathematical criticisms of Moranus's friend, the Antwerp mathematician and Jesuit priest André Tacquet (1612-1660).² Despite the fact that The *Animadversiones* is one of the first European responses to Hobbes's natural philosophy, it has received surprisingly little attention.

In his essay on 'Hobbes and the European Republic of Letters', in *Aspects of Hobbes* (2002) Noel Malcolm observed that:

Hobbes's botched mathematical demonstrations helped to deflate his reputation among continental scientists. The critical book published by Moranus in Brussels before the end of 1655, which included disproofs of Hobbes's mathematics by André Tacquet, may have had some effect, as did the circulation of John Wallis's *Elenchus geometriae hobbiana*.³

In an earlier chapter, Malcolm mentions Moranus's work as one of a number of anti-Hobbesian works owned by the merchant, printer and poet Pierre de Cardonnel (1614-1667).⁴

There are also a number of fleeting references to Moranus's work in the works of scholars interested in Hobbes's mathematics. In a 1979 article on Hobbes and mathematical method, Wolfgang Breidert mentions Tacquet's mathematical criticisms of Hobbes, when discussing Hobbes's belief that a collective campaign was being mounted against him.⁵ Breidert points out that Seth Ward was already aware of Moranus's book in 1656 when he published his *In Thomae Hobbii Philosophiam Exercitatio Epistolica*, where he refers to Tacquet's 'letter to Moranus' (*Epistola ad Moranum*) alongside the polemical works of John Wallis as a reason for concentrating his efforts on the physical aspects of Hobbes's *De corpore*.⁶ Tacquet's critique of Hobbes's mathematics is included in Moranus's book in the form of a letter addressed to Moranus.⁷ Ward does, as we shall see, make occasional references to Moranus's philosophical objections to Hobbes's work, although these references have not hitherto been noticed.

Since Breidert's article a number of historians of mathematics have mentioned the *Animadversiones*. Alexander Bird's 1996 essay, 'Squaring the Circle: Hobbes on Philosophy and Geometry' briefly mentions Moranus, but provides no further details.⁸ In a footnote in the introduction to his 1999 edition of Hobbes's *De corpore*, Karl Schuhmann also briefly mentions Moranus's work, but only to register that Hobbes had not bothered to revise his work in light of Moranus's and Tacquet's criticisms.⁹ Douglas Jesseph refers fleetingly to Moranus's work in his study of the Hobbes-Wallis controversy, *Squaring the Circle* (2000), mentioning simply that 'the mathematical sections of Moranus's critique were written by André Tacquet.'¹⁰

Regardless of whether Hobbes responded to the criticisms of Moranus and Tacquet, they do have some inherent historical significance. Whilst the polemics against Hobbes in his native country have received significant attention, Moranus's philosophical objections to Hobbes's natural philosophy offer us a fascinating picture of the early critical reception of Hobbes's work by a continental religious writer trained in the late scholastic tradition, and may (as Malcolm suggested) have had an effect on Hobbes's European reputation.

In this paper I will look at a number of philosophical topics which Moranus criticised in Hobbes's work, including, the relationship between philosophy and theology, his mechanical psychology, his theory of imaginary space, his use of the concept of accidents, his blurring of the distinction between the human being and the animal, and his theories of motion.

Firstly, however, I would like to speculate a little on why Moranus found himself writing this book in the first place. As we know, the imminent publication of Hobbes's *De corpore* created a great stir among the scholars of Oxford at the time, and the Professor of Mathematics John Wallis launched a virulent and protracted campaign against Hobbes's work which was aided and abetted by the printer who seems to have allowed pre-publication drafts to circulate amongst interested parties.¹¹ Wallis and his friends were busy formulating a counter-offensive against Hobbes's work, and it seems that Moranus was in Oxford at this time. According to his prefatory epistle addressed to Hobbes (dated 21 September 1655) Moranus said that he only recently returned to Belgium from Oxford (*Non ita pridem est quod in Angliam è Belgio veni*), where he had gone in order to converse with 'erudite men in Theology, Ethics, Physics, and Geometry'.¹² In particular he had been discussing the circulation of the blood, and the role of the *vis formatrix* in the formation of the foetus with William Harvey,¹³ and Harvey had mentioned Hobbes to his Belgian visitor as 'an author of a new work of Physics, *De Corpore*, and a new work of Ethics, *De Ciue*.'¹⁴ Moranus sought out Hobbes's works, and an unnamed friend obtained a copy of *De corpore* for him, although the same friend (who seems to have been a printer – *typographus*), refused to provide him with a copy of *De Ciue*.¹⁵ We could accept Moranus's story about encountering Hobbes's work via an informal recommendation of William Harvey, but it seems possible, however, that Moranus had been moving in Oxford circles where the imminent publication of Hobbes's

work was being discussed, and had been recruited by the anti-Hobbes lobby, or at least volunteered his services to them. Tacquet's involvement seems to have been Moranus's doing, as Tacquet mentions that Moranus had sent him a copy of Hobbes's work, asking his opinion on the mathematical chapters.¹⁶ Moranus must have sent Tacquet a copy of *De corpore* very quickly for his friend to read, digest and write his critical letter to Moranus within three months of its publication. It seems possible that – like Wallis and his friends – Moranus might have procured pre-publication copies of Hobbes's work from the printer, and had been encouraged to pass them on to his famous mathematical friend. This would explain why Ward was aware, within months of its publication, of a small book published in Brussels by an obscure Belgian philosopher.

1. Philosophy and religion

Moranus is a deeply obscure figure. He was a friend of a Jesuit priest, but does not appear to have been a Jesuit himself.¹⁷ His philosophical vocabulary suggests someone who had read Jesuit commentaries on Aristotle, and who was familiar with late scholastic natural philosophy and psychology. He also seems to have certain religious commitments. He was that is to say, a Belgian Catholic, who appears to have had a university education, possibly at a Jesuit College.¹⁸ Given his particular discussions with Harvey while he was in Oxford it is possible that he had some medical training. He was clearly not put off by the innovative nature of Harvey's doctrines, and apparently he was initially attracted to Hobbes's work because of its promise to simplify and clarify philosophical language. Moranus read Hobbes's dedicatory epistle eagerly and with pleasure because it promised to 'banish from philosophy words and alien concepts introduced by those who are excessively metaphysical, that is to say, when they lack substance and injure the truth.' This, Moranus says, accorded well with his own disposition.¹⁹ However, he is soon disturbed by Hobbes's dismissal of contemporary scholasticism and the fathers of the Church who had introduced 'many false and absurd doctrines out of the metaphysics and physics of Aristotle' which – Hobbes claimed – had been noxious to Christianity, and his championing of modern natural philosophers such as Galileo, Harvey, Gassendi and Mersenne (the last of which, Moranus says, is 'not a very solid author' – *auctor minime solidus*).²⁰

Most importantly, perhaps, Moranus – like many of his contemporaries – was uncomfortable with Hobbes's separation of theology and natural philosophy. The opening paragraph of the work, which addresses *De Corpore* I.8. clearly shows that he is unhappy with Hobbes's exclusion of the divine and the incorporeal from natural philosophy:

The *Subject of Philosophy*, you assert, is *every Body of which we can conceive any generation, and which we may by any consideration thereof compare with other Bodies.* and hence you exclude from Philosophy first of all God, then the Angels and all those things which are thought to be neither bodies, nor affections of Bodies.²¹

He demands to know what authority he has for breaking with the common understanding of philosophy as 'the knowledge of things human and divine,'²² and criticises him for overlooking the generation of things involved in the Creation:

Do you conceive there to be no generation in God nor any generation of the eternal word? No creation of things produced by it? No agreement necessarily dependent on it? No connection established between them so that the first mover and that which remains unmoved give motion to all things? so that they might exist here and now? ²³

Moranus also objects to Hobbes's anthropology. If he restricts philosophy to bodies, how can he do full justice to the human being?

What are you dealing with in the second section of your philosophy which promises to treat of man? Is it only that which is body or corporeal? But this is not man but an animal. Does it not consider the soul, that is the mind, incorporeal and immortal on account of its true likeness and emulation of its author? But this does not belong to your philosophy?²⁴

In others passage we can see that Hobbes wasn't always fully aware of (or chose to ignore) the interdependence of theology and natural philosophy in Catholic Europe. For example, Moranus criticises Hobbes for maintaining what one would imagine would be an uncontroversial doctrine, i.e., that 'neither can two bodies be in the same place at the same time: nor can one body be in two places at the same time.'²⁵ Moranus's initial objection does not, on the face of it, seem particularly compelling: 'two bodies penetrating each other, he says, are in the same place, and one body reproduced or replicated can be in two places.'²⁶ The first of the two objections seems reasonable up to a point, although interpenetrating bodies would occupy proximate but not identical places, but the second objection sounds less obvious. What kind of reproduction or replication does Moranus have in mind? First of all he refers to the rarity and density of bodies, saying that God can will bodies to interpenetrate in this way:

two bodies may penetrate each other and in fact do penetrate each other by the power of the first agent or entity, that is God, from the first creation of bodies, the greater density or rarity of which is not, or cannot be, anything other than the intraposition of more or less homogenous matter.²⁷

By the end of the paragraph we can see the underlying motivation for this discussion of the interpenetrability of bodies: the doctrine of the resurrected body. 'The reproduction and interpenetration of the same body,' Moranus says,

will be denied by nobody who does not wish or dare, against reason and faith, to deny the infinite active force of the first being and the resurrection of the same and real body that I demonstrate elsewhere; neither of which I trust you wish or dare to do.²⁸

It seems unlikely to me that Hobbes had foreseen this kind of theological objection to what seems like a natural philosophical truism, or been sensitive to the theological stakes of his matter theory.

2. Imaginary space

Not all of Moranus's criticisms are religiously motivated, however (or at least not in any direct way), and some of his objections involve what he considers to be Hobbes's technical mishandling of philosophical concepts. One area of Hobbes's philosophy which has attracted significant attention from Hobbes scholars is his doctrine of 'imaginary space' (*spatium imaginarium*). Moranus's *Animadversiones* sheds some interesting light on the topic although up to now the secondary literature on Hobbes's concept of space has neglected Moranus'

work. The terms in which Moranus engages with the Hobbesian concept of space, could help us, for example, to consider the merits of the disagreement between Karl Schuhmann and Cees Leijenhorst, who have argued that Hobbes' concept of imaginary space should be viewed in the context of Jesuit commentaries on Aristotle,²⁹ and Martine Pécharman who has argued that 'the search for Jesuit sources for the concept of space in Hobbes does not render sufficient justice to the progress of reflection internal to the philosophy of Hobbes.'³⁰

It would appear from Moranus's objections to Hobbes' theory of space that he saw it as part of the ongoing scholastic debate about the nature of space and place. First of all Moranus attacks Hobbes's definition of space in *De corpore* VII.3 where he says that 'space is the Phantasm of an existing thing in so far as it exists.'³¹ His first point of attack is Hobbes's inconsistency, because he notes that in the previous section he had talked about an empty space or vacuum being, 'fitter to receive new bodies' than a full space.³² This phrase assumes, as Moranus points out, that 'space is not, therefore, the phantasm of an existing thing in so far as it exists, but rather the Phantasm of a non-existing thing in so far as it does not exist.'³³ That is to say, a vacuum is an imaginary space ready to receive really existent things. Furthermore, when he states that space is a phantasm, he is making a claim about its ontological status: 'when something exists in a fantastic form [*Phantasticè*],' Moranus says, 'it cannot be posited, or said to be posited, as anything other than fantastic. And therefore the empty phantasm of space serves no other purpose than to confuse real truth with vacuous imaginations.'³⁴ Moranus here seems to be defending the problematic idea of space as an *ens reale* rather than an *ens imaginarium* or *ens rationis* (he doesn't want to 'confuse real truth with vacuous imaginations').

Cees Leijenhorst, in his 1996 article on 'Jesuit concepts of *Spatium Imaginarium*', shows how the Jesuit textbooks 'display a distinct tendency to use the concept of imaginary space in order to solve the problems linked with the Aristotelian notion of place,'³⁵ and insists that Hobbes 'takes up the notion of *spatium imaginarium* developed in Jesuit commentaries,' rather than adopting the notion of space advanced by *novatores* such as Telesio, Patrizi and Gassendi, who saw space as 'incorporeal but self-subsistent (i.e., substance-like).'³⁶ For his part, Moranus adopts one of the Jesuit solutions outlined in Leijenhorst's study, that of the Spanish Jesuit Franciscus Toletus (1532-1596).³⁷ In his *Commentaria vna cum Quaestionibus in Octo Libros Aristotelis De Physica Auscultatione* (1573), Toletus distinguished between what he called 'intrinsic' and 'extrinsic' space or place. 'True place is twofold', says Toletus,

one kind of place is intrinsic to the thing itself, and the other extrinsic. Extrinsic place is that which surrounds the located body itself, that is to say, the containing body or its outermost surface, of which Aristotle spoke. The intrinsic place of a thing, however, is that space itself which the thing itself truly occupies, according to its bodily nature.³⁸

While Toletus does not believe that place is a substance – either corporeal or incorporeal³⁹ – he does not believe that it is merely imaginary – or rather, he distinguishes between real and imaginary place. One kind of place is real he says, the other imaginary, the space beyond the heavens which we can imagine to exist is imaginary. The vacuum, he says, if it were to exist in this world, would be an imaginary space.⁴⁰

Moranus ignores Toletus's remarks on imaginary space, but adopts the intrinsic/extrinsic distinction, and puts forward Toletus's understanding of real place and space as the truly authoritative position. 'The real truth of places or spaces,' he says

is grasped by one who says that the intrinsic place of the thing or the only real space is that extended thing which is nowhere else other than in itself: thus the true place of the world is the world itself, which is nowhere else other than in itself, since there is nothing outside it : but the extrinsic place of the located thing is the surface of the body surrounding that located thing; but not the outermost intrinsic surface of the thing itself located as you seem to assume towards the end of chapter VIII section 5.⁴¹

Moranus here contests Hobbes's understanding of the intrinsic space of located bodies, but he certainly seems to think that Hobbes is operating within the terms of late-scholastic commentary, and this belief gives some credence to Leijenhorst's claims, although (as Leijenhorst himself is quick to point out), Hobbes's use of the concept of *spatium imaginarium* has a very different motivation from that of the Jesuits, who were trying to preserve the authority of Aristotle's concept of place, whilst providing solutions to some traditional problems relating to it.⁴²

3. *Philosophus or Philophtasus?* Hobbes on accidents

In his *In Thomae Hobbii Philosophiam*, Seth Ward, in one of his very occasional references to Moranus's *Animadversiones* says that he will refrain from discussing Hobbes's claim in *De corpore* VIII.23 that what gives man his essence is an accident, because 'Moranus has confuted it, and therefore I will pass over it in silence.'⁴³ Ward, then, was willing to defer to his Flemish counterpart on this issue, and Moranus does a creditable job of showing that Hobbes had fundamentally misunderstood the nature of accident as it was defined by Aristotelian natural philosophers.⁴⁴ Moranus declares himself to be baffled by Hobbes' definition of an accident in VIII.2 as 'the faculty of a body by which it impresses its concept in us.'*(accidens esse facultatem corporis qua sui conceptum nobis imprimit)*. An accident, he retorts, is not an accident because it impresses a concept in us, but because it is the accident of a body.⁴⁵ Hobbes's definition is obscure he says, and 'alien from the truth' as 'many things in bodies imprint their concepts in us which are not accidents'.⁴⁶ Hobbes, he says, improperly confines accidents to 'modes alone', which has been 'eloquently denied by many philosophers who are not lovers of vain names or concepts to be something distinct from things and circumstances', the real accidents of bodies, they say, are very different – an accident being the thing which arranges bodies into different substantial forms. Accidents, Moranus says, do not exist in order to impress concepts but 'in order that the bodies themselves may be altered in various ways.'⁴⁷

Hobbes also makes a fundamental error – from the perspective of a late scholastic like Moranus, when he confuses accident and essence. The error seems all the more egregious because it is not just any essence that Hobbes confuses, but the essence of man itself. In *De corpore* VIII.23, Hobbes says that '*It is customary to call the accident on account of which we impose a certain name on something – such as the rationality of man – its "essence".*' Moranus is incredulous at this fundamental mistake:

Essence you say? Since it is not customary for others to speak of it in this way, why will I be pleased to have it so? Since, in your judgement in III.4 that "these words, essence, entity and all these other barbarisms are not necessary to philosophy", it seems to you that rationality is an accident of man? I believe it to be the essential constitutive difference of man.⁴⁸

Moranus is also unhappy when Hobbes differentiates bodies from accidents on the basis of their generation. When Hobbes in VIII.20 says that ‘bodies are things and are not generated, accidents are generated and are not things.’⁴⁹ Moranus retorts :

You might have said not absolute or substantial things but the thing of a thing or the being of a being, but you have said simply, “not things”? This may show someone to be a Philo-fantastist but not a Philosopher.⁵⁰

Hobbes probably did not intend to deny accidents any kind of real existence in this passage, but Moranus is able to undermine him by pointing out the lack of the kinds of subtle distinctions which an Aristotelian would make when discussing the rather obscure relationship between a body and its accidents. For Moranus, a philosopher who neglected the customary metaphysical distinctions was simply living in a kind of fantasy world.

A similar incomprehension can be found when Moranus reads Hobbes’s attack on the idea of the ‘inherence’ of accidents in bodies. For Hobbes, the accidents of colour, odour and heat are in bodies in a straightforward way (*in esse*), just like extension, motion, rest or figure. Those who believe in inherence, he says, should suspend their judgement, and might come to see that these accidents are ‘certain motions, either of the mind of the one who imagines, or of the bodies themselves.’⁵¹ Moranus concedes that colour, heat, odour ‘in as much as they are sensible, ought necessarily to exist in motion, so that they may be sensed by the imagination’, but refuses to suspend his judgement about them. Ironically he criticises Hobbes, in part, for using the standard scholastic terminology about accidents: ‘qualities or sensible accidents’, he says, ‘or those things you call beings of a being, or tenuous beings or corpuscles or whatever other abstraction you imagine do not exist in motion, but only sensible accidents of them exist.’⁵² Moranus’ criticisms seems slightly confused: he criticises Hobbes for calling sensible accidents *entis entia*, which he implies is an ‘abstract term’, but this is the very terminology used by Thomas Aquinas in his commentary on Aristotle’s *Metaphysics*,⁵³ and is also used by later scholastics.⁵⁴ But Moranus then equates this abstract term with others, like ‘tenuous beings’ (a term used by Bernardino Telesio and Tommaso Campanella in relation to the phenomenon of heat),⁵⁵ and ‘corpuscles’. The criticism of the term corpuscles is particularly strange, as Moranus uses this term himself later in the same passage. Sensible accidents, Moranus says, perfect and dispose the bodies they are in ‘by what I call the perpetual agitation of their corpuscles which is made by the various motions of bodies in the universe.’⁵⁶

Moranus is among those seventeenth-century philosophers – such as Daniel Sennert – who sought a compromise between corpuscularism and Aristotelian natural philosophy.⁵⁷ He draws, for example, on the Aristotelian notion of *minima naturalia*, a term he uses as a synonym for atoms.⁵⁸ For Moranus, *minima* are the naturally continuous parts of bodies, which have been placed in prime matter by God, and he pointedly distinguishes his corpuscles from those of Democritus’ atomism.⁵⁹ Moranus’s corpuscular matter theory allows him to criticise Hobbes on his own terrain when he attacks the experiments to disprove the existence of a vacuum in *De corpore*, XXVI.2 as ‘trite’ and ‘insignificant’.⁶⁰ Although Moranus is not an atomist he does insist that all fluid mixtures consist of ‘many hard and flexible corpuscles of various shapes and magnitudes,’⁶¹ and he seeks to overturn Hobbes’s arguments on corpuscular grounds, claiming that he has misunderstood the nature of continuous homogeneous bodies, like air and water.

While Moranus shows himself willing to contest Hobbes’s experiments by refuting them on a technical level – invoking alternative explanations based on a corpuscular but non-atomistic matter theory, there is a much more serious objection underlying his critique:

Hobbes's rejection of immaterial motive force, and by implication, God as the unmoved first mover:

You deny the existence of an immaterial motive force of the body because, you say, that nothing is moved unless by a moving and contiguous body. You deny it badly and you prove it worse; for either you bring forward for a reason the very thing that you deny, which is absurd; or you deny that an unmoved first mover and self-moving intelligence can cause the motion of a body, which is manifestly false from what I have said above, and by the authority of Aristotle and by reason.⁶²

At bottom, then, Moranus rejects Hobbes's natural philosophy as both un-Aristotelian and impious.

4. Mechanical psychology

Moranus also argues quite strenuously against Hobbes's mechanical account of perception and cognition, particularly because it does not distinguish clearly enough between man and the animal. Moranus, however, addresses himself to the philosophical coherence of Hobbes's theory, and teases out what he sees as obscurities or self-contradictions. For example, in commenting on *De corpore* XXV.2, where Hobbes is explaining sense perception as the result of a resisting endeavour of the sense organ against the incoming endeavour of the object, Moranus objects to Hobbes's reasoning by invoking scholastic conceptions of generation and natural motion:

anyone who is not completely ignorant easily grasps that no sense perception is made without the motion or alteration of the sentient [but] from this alone you consider yourself to have enough so that you may resolutely define [...] *that sensation is made by the endeavour (or motion) from the sensory organs towards the outside, which is generated by the object inwards and to a certain extent remaining in it. by the reaction the phantasm is made*. I, however, detect not only obscurity in this definition, but also falsity. For firstly, in paragraph 2 you state that there is an endeavour or motion from the organ contrary to the endeavour or motion from the object; therefore the endeavour of the sensory organs towards the outside are not generated by an endeavour from the object towards the inside: for contraries are not generated by contraries but destroyed; then how can you speak of *the natural internal motion of the organ*, if it is generated by a motion or endeavour from the object, which is opposed to nature, or violent?⁶³

In addition to questioning the 'naturalness' of mechanical motion, Moranus also questions the nature of the phantasm and the nature and location of its generation. What is this 'chimerical idol', ask Moranus, which seems to be produced out of nothing in multitudes? Is this mysterious generation of images from the objects and the organ, like the generation of a foetus from a seed? Where does this generation take place, he asks. Is the place of reaction some mid-point between the object and the sensory organs? Or is the place of reaction the object itself, as the source of the endeavours which enter the sensory organs?⁶⁴ Moranus is actually quite astute, as Hobbes does not make it sufficiently clear how phantasms can be generated by two opposing motions, or why phantasms are produced instead of something else.⁶⁵

There are other, much more troubling consequences which arise from this, however. Moranus criticises Hobbes for suggesting that phantasms are produced by motion alone. It would be more accurate, he says if Hobbes had discussed them as a special kind of motion.⁶⁶

Hobbes does specify that sense is only produced in ‘some of the internal parts of the sentient’ (*partium aliquarum intus sentiente*) – namely the parts which we call the ‘organs of sense’⁶⁷ – but Moranus presses the idea that perception is motion *in genere* to draw a disturbing consequence. ‘Supposing that motion of the organ and the phantasm moved by it to exist,’ he says,

that is, speaking like you not fantastically, but physically, why is the configuration or impression of the organ by the motion of the object and the figure answering to it sense perception or sensation? Certainly if sense perception is nothing but motion and the configuration of the organ made by that motion, all bodies, which are configured by the motion of reaction one way or another, and really receive a likeness or phantasm, ought to sense, and therefore wax pressed and imprinted by a seal ought to see.⁶⁸

If perception is just matter in motion, then any matter which can be moved must be capable of perception. In a curious way, then, Hobbes’ mechanism implicates him in a kind of vitalist belief in sentient matter. In fact, Hobbes is aware of this consequence himself, and seems strangely unconcerned about it. In XXV.5 he says:

But though all Sense, as I have said, be made by Reaction, nevertheless it is not necessary that every thing that Reacteth should have Sense. I know there have been Philosophers, & those learned men, who have maintained that all Bodies are endued with Sense. Nor do I see how they can be refuted, if the nature of Sense be placed in Reaction onely. And, though by the Reaction of Bodies inanimate a Phantasme might be made, it would nevertheless cease, as soon as ever the Object were removed. For unless those Bodies had Organs, (as living Creatures have) fit for the retaining of such Motion as is made in them, their Sense would be such, as that they should never remember the same. And therefore this hath nothing to do with that Sense which is the subject of my discourse.⁶⁹

Hobbes was probably thinking of Telesio and Campanella when he speaks of philosophers who have argued that matter is sentient, and he freely admits that the suppositions of his own theory would allow him no grounds to refute such a position, although he does not adopt it himself. His only objection is the lack of the requisite organs – although he does not say what makes the matter of organs ‘fit’ for retaining phantasms as distinct from other kinds of matter.

Moranus pushes the absurdity of Hobbes’s position. He anticipates that Hobbes might make some objections about the nature of the motions involved in perception:

You might say, it is an endeavour, not just a motion. But what is this endeavour but a passive motion from another moved body, which there is in the wax? You might say that this endeavour is a motion of the corporeal soul or life coexisting or united with the organ; but what is this soul or life other than a body, just like that last organ itself and the wax which are posited above?⁷⁰

I’m not sure that Hobbes would agree with Moranus’s definition of *conatus* as a ‘passive motion’, and he certainly did not claim that *conatus* was a kind of ‘soul or life’. Moranus is right to surmise that for Hobbes the human soul is a material thing, and he uses this to posit logical absurdities which follow from it. ‘Thus it remains,’ he says,

that there is sense even in imprinted wax; because, as you say, not only philosophers and learned men sense but also trees, by that it is posited both that a tree is an animal, and that every animal is a tree; or there is nothing vital or corporeal in the soul, if sense perception is nothing other than motion or the configuration of a body.⁷¹

If we accept Hobbes's arguments, then sealing wax senses that it is being stamped and trees are animals.

When he reaches XXV.8, Moranus turns once again to religious objections. Here Hobbes explicitly states that the generation of phantasms which result in perception and thinking are common to both man and the animals.

Now you begin to reveal yourself and demonstrate as a truth what I was afraid of before, *The perpetuall arising of Phantasmes, both in Sense and Imagination, is that which we commonly call Discourse of the Mind, and is common to men with other living Creatures*. Is it not this that you say you have done in section 3 of *De Cive*, by strong Arguments of Reason, without repugnance to Gods Word?⁷² Surely this does not trouble you, who in this [passage] so manifestly contradict the divine word, completely repugning more than one passage [in the Bible].⁷³

Moranus cites passages from Ecclesiastes (15:14) and Genesis (1:26), which indicate that God created man in his likeness, and with reason and free will.⁷⁴ Hobbes's psychology flagrantly contradicts this Biblical conception of man as a special creation. 'Where did you read anything like this in the divine word concerning the animal?' Moranus demands,

and why I ask you, do you distinguish between 'animals' and 'men'? Or why might I, at this very moment, call you a 'man'? If discourse of the mind by which power we are men, is nothing besides sensation and the senses, that is the production of phantasms, and if it is common to you and the animal? I call 'men' those who think insensible truths, so that in thinking I know myself to be a man; this discourse of the mind is not the production of phantasms, but from the principles of divine truth, that is, by the light of the divine face imprinted on us by rational motion; elsewhere I demonstrate that it is only in men; I say very little to you using your own principles.⁷⁵

Conclusions

What became of Moranus's *Animadversiones*? They were not – as we have seen – entirely ignored by Hobbes's contemporaries. Seth Ward was well aware of Moranus's work, and even defers to it on occasions. When discussing Moranus's criticisms of Hobbes's views on necessity in *De corpore* XXV, Ward – a little hyperbolically perhaps – referred to him as 'the famous Moranus' (*Clarissimus Moranus*). Moranus he said had revealed all kinds of problems in Hobbes's position, but Ward declines to discuss the issue of human freedom and refers his readers instead to Moranus and the arguments of John Bramhall.⁷⁶

John Wallis also mentions Moranus in 1656, albeit indirectly. In his *Due Correction for Mr Hobbes or Schoole Discipline, for not saying his Lessons right* (1656), Wallis mentions a 'fling at Moranus', in Hobbes's *Six Lessons to the Professors of the Mathematicques* (1656).⁷⁷ In the *Six Lessons* Hobbes does indeed mention – but does not engage with – Moranus's *Animadversiones*. It is clear that Hobbes had read the dedicatory epistle which had been addressed to him, as he paraphrases some of Moranus's remarks about his reasons for visiting Oxford.⁷⁸ He dismisses Moranus's 'common and childish learning' and criticises him for

having wasted the time he had spent with William Harvey. Rather than learning from Harvey, Hobbes says, he spent his time ‘venting his own childish Opinions, not suffering the Doctor scarce to speak.’⁷⁹ Not finding himself ‘much admired’, Hobbes claims, Moranus:

took occasion ... to be revenged of D. Harvey, by sleighting his learning publickely; and tels me that his learning was onely Experiments, which he sayes I say have no more certainty then Civil Histories. Which is false. My words are, *Ante hos nihil certi in Physicâ erat praeter Experimenta cuique sua, & Historias Naturales, si tamen & hae dicendae certae sint, quae Civilibus Historiis certiores non sunt.*

Hobbes was clearly rankled by Moranus’s jibe in the prefatory epistle where he suggests that Hobbes’ praise of Harvey in the dedicatory epistle of the *De corpore* was self-serving, and disparages Hobbes by disparaging Harvey’s achievements. Hobbes had said that Harvey had been the first to discover ‘the Science of Mans Body, the most profitable part of Natural Science.’⁸⁰ Before Harvey’s works, Hobbes said, ‘there was nothing certain in Natural Philosophy but every mans Experiments to himself, and the Natural Histories, if they may be called certain, that are no certainer then Civil Histories.’⁸¹ Moranus exploits the ambiguity of Hobbes’s syntax to suggest that it was experiments, rather than natural histories that were ‘no certainer then Civil Histories’. Harvey, Moranus says, ‘confessed to me that his doctrine of the circulation of the blood relied on experiments alone, which you say are *no more certain than civil histories*, but at my lodgings, and in the presence of an intelligent witness, he did not defend it in a satisfactory way.’⁸² Hobbes makes no further reference to Moranus, whom he obviously considered to be unworthy of a detailed rebuttal.

Although Hobbes didn’t feel that Moranus was worthy of a reply, Robert Boyle begged to differ. Almost thirty years after the publication of Moranus’s *Animadversiones*, Boyle writes:

whilst such Mathematicians as Dr Wallis, Dr Ward, Tacquet, and Moranus (Men much too famous to be despicable Adversaries) having a good while since professedly and unchalleng’d written against him, he hath yet, the whole Discourses of some, and so great a part of the Objections of the others, to reply to.⁸³

While referring to Moranus as a mathematician, let alone a famous one, would suggest that Boyle had no firsthand experience of the *Animadversiones*, he is perhaps not wrong in suggesting that Moranus – like Ward – was worthy of a response. As far as I am aware Boyle’s reference is the last trace of Moranus’s critique of Hobbes until Breidert unearthed it from Ward’s polemic in 1979.

I hope that this brief survey of Moranus’ little book has shown that renewed attention to Moranus and Tacquet’s criticisms of Hobbes might have something to offer to scholars interested in Hobbes’s natural philosophy and mathematics. Just as Wallis and Ward attacked Hobbes on two fronts, with Wallis focusing on mathematics and Ward focusing on the physics, ethics and politics, so Moranus and Tacquet present a two-pronged attack against Hobbes’s *De corpore*.⁸⁴ While Tacquet’s mathematical objections have received some attention (although there has been no detailed analysis of his refutations), Moranus’s philosophical objections seem to have been completely ignored, even by those interested in the controversy surrounding the publication of Hobbes’s *De corpore*.⁸⁵ While we know much about the English reception of his work, Moranus offers us a tantalising glimpse of how a European scholar with religious investments and connections to the anti-Hobbes lobby in Oxford reacted to the impieties of Hobbes’s materialist philosophy.

NOTES

¹ G. Moranus, *Animadversiones in Elementorum Philosophiae sectionem I. De Corpore. Editam A Thoma Hobbes Anglo Malmesburiensi. Londini 1655*. (Brussels, 1655). Moranus's dedicatory epistle is dated 'X. Cal. Octobris. M.DC.LV.' i.e., 21 September 1655 (Moranus, *Animadversiones*, 4). On the date of *De corpore*'s publication see Schuhmann, ed. *De corpore*, XLI and fn. 2. Schuhmann concludes that it was probably published sometime between 21 and 24 June. I have been unable to find Moranus in any of the standard bio-bibliographical works for this region which I have consulted, including seventeenth-century sources such as *Bibliotheca Scriptorum Societatis Jesu* (Rome 1676).

² Moranus describes Tacquet as "amicus meus [...] inter Belgas Geometra primae notae." (Moranus, *Animadversiones*, 12). Tacquet's mathematical criticisms take up pages 13-29 of Moranus's book – i.e., just under a third of the book.

³ Noel Malcolm, *Aspects of Hobbes* (Oxford: Clarendon Press, 2002), 498

⁴ Malcolm, *Aspects*, 289-90.

⁵ Wolfgang Breidert, 'Les Mathématiques et la méthode mathématique chez Hobbes', *Revue Internationale de Philosophie*, 33: 129 (1979): 415-431 (425): 'Hobbes avait l'impression d'une attaque collective parce qu'on s'élevait contre lui en division de travail: Seth Ward se bornait expressément à la partie physique, parce que la partie mathématique était traitée par Wallis dans l'*Elenchus* et par le pere André Tacquet dans une lettre à G. Moranus.'

⁶ Seth Ward, *In Thomae Hobbii philosophiam Exercitatio Epistolica* (Oxford, 1656), 52.

⁷ Moranus, *Animadversiones*, 13: 'ANDREAS TACQUET G. MORANO S. D.'

⁸ Alexander Bird, 'Squaring the Circle: Hobbes on Philosophy and Geometry', *Journal of the History of Ideas*, 57:2 (1996): 217-231 (218). Bird lists Moranus as being among a handful of scholars who had 'given [Hobbes's mathematics] more than passing thought.' Strictly speaking, however, it is Tacquet and not Moranus who gives his attention to Hobbes's mathematics.

⁹ Thomas Hobbes. *De Corpore. Elementorum Philosophiae Sectio prima*, edited by Karl Schuhmann (Paris: Librairie Philosophique J. Vrin, 1999), 'Introduction', C, fn. 1: 'Hobbes n'a jamais revu son texte en fonction des critiques du *De Corpore* contenues dans le livre de G. Moranus (et André Tacquet), *Animadversiones in Elementorum Philosophiae sectionem I. De Corpore. Editam A Thoma Hobbes Anglo Malmesburiensi. Londini 1655*. Bruxelles, 1655 (la préface datée du 22 Septembre 1655).'

¹⁰ Douglas Jesseph, *Squaring the Circle : The War Between Hobbes and Wallis* (Chicago: Chicago University press, 2000), 10, fn. 17.

¹¹ See Jesseph, *Squaring the Circle*, 129: 'Wallis had procured an early unbound copy of the first impression of *De Corpore*, and was able to reconstruct the unflattering history of Hobbes's attempt to square the circle.' See also fn. 66 which quotes G. C. Robertson on the availability of 'copies carelessly issued in the first unamended form.' See also Schuhmann, 'Introduction', XXXVII-XL. Schuhmann says that Wallis had been able to obtain advance proofs of Hobbes's work 'in a more or less clandestine way' (*de manière plus ou moins clandestine*), XXXVIII, and suggests that a 'certain negligence' (*une certain négligence*) on the part of Hobbes's publisher Crooke, might have been involved (XL).

¹² Moranus, *Animadversiones*, 3: 'in Theologicâ vel Ethicâ vel Physicâ & Geometricâ facultate eruditi viri'

¹³ Moranus, *Animadversiones*, 3.

¹⁴ Moranus, *Animadversiones*, 3: 'auctorem novi operis Physici de Corpore & Ethici de Cive.'

¹⁵ Moranus, *Animadversiones*, 3: 'illud quidem de Corpore ab amico, cui id negotii dederam, mihi allatum est; alterum vero de Cive negabat idem ipse typographum, nescio quâ causâ, ausum fuisse distrahere.'

¹⁶ Moranus, *Animadversiones*, 13: 'I read the philosophy of that renowned gentleman Thomas Hobbes which you recently sent me with the greatest eagerness, and especially that part which is mathematical.' (*Philosophiam V. Cl. Thomae Hobbei mihi nuper à te missum, aviditate summâ percurri, ea praesertim parte, quâ Mathematica est.*)

¹⁷ Despite the fact that Hobbes refers to Moranus as 'a Jesuite' in his *Six Lessons to the professors of the Mathematicques* (1656), 57, I have not been able to find any evidence to support this statement. The *Bibliotheca Scriptorum Societatis Jesu* (1676) includes Tacquet, but not Moranus.

¹⁸ On Jesuit education in seventeenth-century 'Belgium', see Paul Begheyn S.J., 'Jesuits in the Low Countries and Their Publications', *Jesuit Books in the Low Countries, 1540-1773: A Selection from the Maurits Sabbe Library* edited by Paul Begheyn S.J., Bernard Deprez, Rob Faesen S.J., and Leo Kenis (Leuven: Peeters, 2009), XXI-XXV.

¹⁹ Moranus, *Animadversiones*, 3: 'Lecta à me ilicò dedicatoria tua, principio quidem placuit, quia promittebat, id quod erat ex genio meo, ablegare à Philosophiâ voces, nescio quas, & conceptus alienos, invectos ab iis qui nimium sunt Metaphysici, cum jactura rei scilicet & cum injuria veritatis.'

²⁰ Moranus, *Animadversiones*, 4. Cf. Hobbes, *De Corpore*, sig. A3r; *Concerning Body*, sig. Bv.

²¹ Moranus, *Animadversiones*, 5: ‘Subiectum Philosophiae ponis corpus omne cuius generatio aliqua concipi & cuius comparatio secundum nullam ejus considerationem institui potest. & hinc excludis à Philosophia Deum inprimis tum Angelos & res omnes quae nec corpora nec corporum affectus existimantur.’

²² Ibid.: ‘Quaero hic abs te, primum qua id auctoritate facis contra communem jam inde à Philosopho, qua semper habita est *Philosophia Divinarum humanarumque rerum scientia*?’ Cf. Cicero, *De officiis*, I.43.

²³ Ibid.: ‘Tum nullamne in Deo Generationem concipis ne illam quidem Verbi aeterni? Nullam creationem rerum ab eo productarum & ab illo necessario dependentium comparisonem? connexionem nullam instituis inter illum ut motorem primum & ea quae stabilis manens dat cuncta moveri, ut hic & nunc sint?’

²⁴ Ibid.: ‘Denique quid in tua Philosophiae sectione 2. quam promittis de homine tractaturus es? tantumne quod corpus sive corporeum est? sed hoc non homo sed animal est. Etiamne quod animam, hoc est mentem, spectat, incorpoream illam & immortalem ex vera similitudine & aemulatione auctoris sui? sed hoc à Philosophia tua alienum est?’ Moranus here is referring to *Elementorum philosophiae sectio secunda: de Homine*, which was not published until 1658, although Hobbes announces its publication at the end of the ‘Epistola Dedicatoria’ of *De Corpore* (sig. A3v-[A4]r).

²⁵ Moranus *Animadversiones*, 9. Cf. Hobbes, *De Corpore*, VIII.8; 66; *Concerning Body*, 79.

²⁶ Moranus, *Animadversiones*, 9: ‘nam duo corpora se penetrantia sunt in eodem loco, & unum corpus reproductum vel replicatum potest esse in duobus locis.’

²⁷ Moranus, *Animadversiones*, 9: ‘Posse autem duo corpora se penetrare & de facto penetrare se virtute entis vel agentis primi, hoc est Dei, ex primâ creatione corporum, quorum major densitas vel raritas aliud nihil est vel esse potest quàm plus vel minus materiae homogeneae intra positio.’

²⁸ Moranus, *Animadversiones*, 10: ‘Reproductionem autem vel explicationem ejusdem corporis negare nemo potest nisi qui contra rationem & fidem negare velit & audeat vim agendi infinitam entis primi & resurrectionem carnis ejusdem verae & realis quod alibi demonstro; quorum neutrum te velle et audere confido’.

²⁹ Karl Schuhmann, ‘Le Vocabulaire de L’Espace’ in *Hobbes et son Vocabulaire. Études de Lexicographie Philosophopique*, ed. Yves-Charles Zarka (Paris: 1992), 61-82; Cees Leijenhorst, ‘Jesuit Conceptions of *Spatium Imaginarium* and Hobbes’s Doctrine of Space,’ *Early Science and Medicine* 1 (1996): 355-80; Cees Leijenhorst, *The Mechanisation of Aristotelianism: The Late Aristotelian Setting of Thomas Hobbes’s Natural Philosophy* (Leiden: Brill, 2002), 111-122

³⁰ Martine Pécharman, ‘La Construction de la doctrine de l’espace chez Hobbes: *spatium/space, locus/place*’, in *Locus-Spatium: XIV Colloquio Internazionale Roma, 3-5 gennaio*, edited by Delfina Giovannozzi and Marco Veneziani (Florence: Leo S. Olschki, 2014), 413-451 (415): ‘La recherche des sources jésuites du concept d’espace chez Hobbes ne rend pas suffisamment justice au progrès de la réflexion interne à la philosophie de Hobbes [...]’.

³¹ Hobbes, *De Corpore*, VII.2, 57; *Concerning Body*, 69: ‘*spatium est Phantasma rei existentis quatenus existentis*.’

³² Hobbes *De Corpore*, VII.2, 57; *Concerning Body*, 69: ‘tantò vacuum pleno ad nova corpora recipenda accommodatius est.’

³³ Moranus, *Animadversiones*, 7: ‘Pag. 57. n. 3. Spatii definitionem hanc assumis: *spatium est Phantasma rei existentis quatenus existentis*. Sed haec tuo ipsius argumento refellitur allato n. 2 sub finem ubi dicis, *ubi aliquid est, nihil amplius poni potest. tantò vacuum pleno ad nova corpora recipienda accommodatius est*, ergo spatium non est Phantasma rei existentis quatenus existentis sed potiùs est Phantasma rei non existentis quatenus non existentis.’

³⁴ ‘Moranus, *Animadversiones*, 7: ‘ubi aliquid est phantasticè nihil aliud enim Phantasticè poni, vel ponibile dici potest, itaque inane Phantasma spatii non ad aliud utile est quam ad veritatem realem cum vacuis imaginationibus confundendam.’

³⁵ Leijenhorst, ‘Jesuit Concepts’, 368.

³⁶ Leijenhorst, ‘Jesuit Concepts’, 364.

³⁷ See Leijenhorst, ‘Jesuit Concepts’, 369-371. See also Leijenhorst’s development of these ideas in, *Mechanisation*, 102-128.

³⁸ Franciscus Toletus, *Commentaria vna cum Quaestionibus in Octo Libros Aristotelis De Physica Auscultatione* [1573] (Venice, 1600), 121r: ‘Verus autem locus est duplex. Alter intrinsecus rei ipsi, alter extrinsecus. Extrinsecus quidem est circumambiens ipsum corpus locatum, videlicet, corpus continens aut eius superficies vltima, de quo locutus est Aristoteles. Intrinsecus vero locus rei, est spatium illud ipsum, quod ipsa res uere intra se occupat, secundum suam corpulentiam.’ See Leijenhorst ‘Jesuit concepts’, 370.

³⁹ Toletus, *Commentaria*, 115v: ‘Spatium illud non potest esse talis substantia ...Si talis substantia est, , vel est incorporea, vel corporea. Si incorporea non poterit extensa esse, & profunda cum locato: hoc enim corpori inest. Si corporea, quantitatem ergo habet, penetrabiturque cum corpore quolibet : at duorum corporum penetratio naturae non conceditur [...] non igitur est spatium illud substantia.’ Toletus here is arguing against Proclus, who did regard space to be a kind of substance.

⁴⁰ Toletus, *Commentaria*, 120v: 'Locus alius est verus, alius imaginarius. Imaginarius quidem est, vt extra Coelum spatium illud imaginarium, quod ibi quisque imaginari potest. Ex vacuum etiam hic in Mundo, si esset, imaginarius esset locus, imaginarium videlicet spatium.'

⁴¹ Moranus, *Animadversiones*, 7: 'Realem porro veri loci vel spatii veritatem capit, qui dicit locum rei intrinsecum vel spatium unicum & reale esse ipsam rem extensam quae non alibi quam in se est: sic verus locus universi est ipsummet universum, quod nullibi est nisi in se, cum nihil sit extra illud: locum autem extrinsecum rei locatae esse superficiem corporis ambientis rem illam locatam; non autem superficiem intrinsecam extimam ipsius rei locatae ut videris assumere infra c. 8, n. 5. sub finem [...].' Cf. ibid, 9: 'I have demonstrated that many things have been stated incorrectly by you ... certainly these. 1. *Space or place is only imagination, inside the mind.* 2. *Place is different from located magnitude.* For true and real intrinsic place of a body is not different from the magnitude of the body. That is from the body itself; but true and real extrinsic place encloses within itself the located contents, it is the whole mass of the world that surrounds that body, which when the located body moves the better part of it remains immobile, although according to some it is changed and moved, which is the basis whereby a thing may be moved to another place, that is the mass of the whole universe configured otherwise, either in itself, or in respect to the located object, or both [...].' (Multa à te non rectè dici ... à me ostensum est: nimirum haec 1. *Spatium seu locum esse tantum imaginarium, intra animum.* 2. *locum differre à magnitudine locati.* verus enim & realis locus corporis intrinsecus nihil differt à magnitudine corporis, hoc est ipso illo corpore; verus autem & realis locus extrinsecus in se circumclausum continens locatum, est tota massa universi circumstans illud corpus, quae moto corpore locato potiori parte sui manet immobilis licet secundum aliquas mutetur & moveatur, quod fundamentum est quare res mota sit in alio loco hoc est aliter configuratâ massâ totius universi vel in se, vel respectu ad locatum, vel utrumque [...].').

⁴² Leijenhorst, 'Jesuit Concepts', 369 and 374.

⁴³ Ward, *In Thomae Hobbii Philosophiam*, 81: 'Ait (§ 23.) *Accidens* illud esse *quod essentiam dat homini*, idemque esse cuius gratia *nomen* illi imponimus; repressit eum Moranus, silebo igitur.'

⁴⁴ On Hobbes's use of the 'accident' in his natural philosophy and its late-scholastic contexts see Leijenhorst, *Mechanisation*, 155-163.

⁴⁵ Moranus, *Animadversiones*, 8: 'nec enim ideo quidquam est accidens, quia conceptum nobis imprimit; sed quia corpori accidit.'

⁴⁶ Ibid. 'multa in corporibus, eorum conceptum nobis imprimant quae accidentia, non sunt.'

⁴⁷ Ibid, 8-9: 'Quàm malè accidentia ad solos modos à te restringuntur qui à multis Philosophis non amantibus aut vana nomina aut conceptus, disertè negantur esse quid distinctum à rebus & circumstantiis, cum longè alia sint accidentia corporum realia, quae illud disponunt ad aliam & aliam formam substantialem (quidcumque demum illa sit quod jam statui à me nihil attinet) atque adeò quae non sunt in corporibus ut eorum conceptum nobis imprimant, sed ut corpora ipsa variè alterent.' Francisco Suárez in his *Disputationes metaphysicae*, saw modes as modifying aspects of a thing, separate from the thing's essence, and distinct from accidents. See Francisco Suarez, *Disputationes metaphysicae* (1597), 7.1.17.

⁴⁸ Moranus, *Animadversiones*, 10: '*Accidens propter quod alicui certum nomen imponimus essentia dici solet ut rationalitas hominis*; Essentia inquis tu? nam aliis ita dici non solet; cur ita amabo? quando te iudice c. 3. num. 4. *vae voces essentia, entitas, omnisque illa barbaries ad Philosophiam necessaria non est*, rationalitas tibi videtur hominis accidens? ego essentialem differentiam constitutivam hominis esse credebam [...]. Cf Hobbes, *De corpore*, 71.

⁴⁹ Hobbes, *De corpore*, VIII.20, 71: 'corpora quidem sint res not genitae, accidentia vero genita sed non res.'

⁵⁰ Moranus, *Animadversiones*, 11: 'Ibidem *Accidentia sunt genita sed non res.* diceres, non res absoluta sive substantialis sed rei res vel entis ens. sed dici simpliciter *non res*? Philophtasus hoc probet, sed non Philosophus.'

⁵¹ Hobbes, *De corpore*, VIII.3, 64: 'motus quidam, aut animi imaginantis, aut corporum ipsorum.'

⁵² Moranus, *Animadversiones*, p. 9: 'qualitates vel accidentia sensibilia, sive illa dicas entis entia sive tenuia entia sive corpuscula sive quid aliud abstractum esse imageris, non substant motui, sed illi subsistant sola accidentia sensata.'

⁵³ See Thomas Aquinas, *In XII Metaphysic.*, lect. 1, n. 2419: 'Nam ens dicitur quasi esse habens, hoic autem solum est substantia, quae subsistit. Accidentia autem dicuntur entia, non quia sunt, sed magis quia ipsis aliquid est; sicut albedo dicitur esse, quia ens subiectum est album. Ideo dicit, quod non dicuntur simpliciter entia, sed ens entia, sicut qualitas et motus.'

⁵⁴ See, e.g., Gabriel Vázquez, *Disputationes Metaphysicae* (Madrid, 1617), p. 2v.

⁵⁵ See, e.g. Bernardino Telesio, *De rerum natura iuxta propria principia*, Libri IX (Naples, 1586), II.13, 58; Tommaso Campanella, *Prodromus philosophiae instaurandae, id est Dissertationis De Rerum Natura Compendium* (Frankfurt, 1617), 56.

⁵⁶ Moranus, *Animadversiones*, p. 9: 'ut corpus cui insunt disponant atque perficiant licet à perpetua illorum ut sic loquar corpusculum evibratione quae fit per motum varium corporum in universo [...].'

⁵⁷ On Sennert see William R. Newman, *Atoms and Alchemy: Chymistry and the Experimental Origins of the Scientific Revolution* (Chicago: Chicago University Press, 2006), Chs. 1-2 and Antonio Clericuzio, *Elements, Principles and Corpuscles: A Study of Atomism and Chemistry in the Seventeenth Century* (Dordrecht: Springer, 2013), 9-34.

⁵⁸ See Moranus, *Animadversiones*, p. 39: 'atomus sive minimum naturale'. On the *minima naturalia* tradition see John E. Murdoch 'The Mediaeval and Renaissance Tradition of *Minima Naturalia*', *Late Mediaeval and Early Modern Corpuscular Matter Theory*, ed. by Christoph Lüthy, John E. Murdoch and William R. Newman (Leiden: Brill, 2001), 91-132.

⁵⁹ Moranus, *Animadversiones*, p. 39: 'When I say this I am not approving of Democritus who falsely and absurdly maintained, so it is said, that all things have been established by the fortuitous flowing together of true or absolutely indivisible atoms.' (*Quod cum dico non assentior Democrito qui false & inepte censuit, uti quidem dicitur, ex fortuito confluxu verarum atomorum sive absolute indivisibilium omnia constituisse.*)

⁶⁰ Moranus, *Animadversiones*, p. 39: 'Vacuum non dari valde jejune & experimento admodum trito & veri ignaro probas.' Seth Ward briefly acknowledges these arguments of Moranus in his *In Thomae Hobbii Philosophiam*, p. 121: 'What an experiment! Truly it is trite enough (whence the most learned Moranus uses this and other epithets).'

⁶¹ Moranus, *Animadversiones*, 40: 'omne mixtum etiam fluidum ... constare quam plurimis corpusculis duris & flexibilibus variae figurae & magnitudinis.'

⁶² Moranus *Animadversiones*, 42: 'Pag. 249. num. 8.§.3. negas vim immaterialem motricem corporis propterea, inquis, quod nihil movet nisi corpus motum & contiguum. malè negas, & peius probas; vel enim pro ratione negati adfers id ipsum quod negas; quod ineptum est; vel negas à primo motore immoto & intelligentiâ se movente posse causari motum corporis, quae falsa esse patet ex supra dictis a me, & auctoritate Philosophi, & ratione.'

⁶³ Moranus, *Animadversiones*, 30: 'Adhaec quia quivis non omnino rudis facilè capit nullam sensionem fieri sine motu seu alteratione sentientis ex hoc solo satis te habere existimas ut resolute definias pag. 225. nu. 2.§ 3. quod sensio fit ab organi sensorii conatu (sive motu) ad extra, qui generatur à conatu ab obiecto versus interna eoque aliquamdiu manente. per reactionem factum Phantasma. Ego vero in hac definitione non tenebras tantum, sed etiam falsitatem deprehendo. Primo enim fit per te § 2 conatui seu motui ab obiecto conatus seu motus ab organo contrarius; ergo organi sensorii conatus ad extra non generatur à conatu ab obiecto versus interna: contraria enim non generantur à contrariis sed destruuntur; tum quomodo motum organi internum naturalem dicis, si generatur à motu seu conatu ab obiecto, qui naturali oppositus sive violentus est?'

⁶⁴ Moranus, *Animadversiones*, 30: 'Adhaec quid est illud Phantasma quod existit, in reactione aliquamdiu durante? an idolum aliquod chymericum inter organum & objectum invicem concurrentia prosiliens ex nihilo, an generatum ex alterutro vel utriusque partibus instar foetus ex semine? Praeterea Phantasma non videtur tamquam aliquid situm extra organum ut dicis, loco scilicet reactionis medio inter organum & objectum motum contra invicem; sed videtur situm ibi ubi est objectum scilicet id, à quo Phantasma ipsum quod à sensione fit tamquam à fonte primo derivari judicamus.'

⁶⁵ Seth Ward also criticises Hobbes for the obscurity of his conception of the phantasm, and his failure to adequately define it. See Ward, *In Thomae Hobbii Philosophiam*, 66-7: 'Primum enim etsi jam ante sit saepius, & deinceps usuris sit per omnem hanc primam Philosophiam vocabulo phantasmatis, nondum tamen phantasma definivit, cujus tamen natura magis in profundo latet plerumque, quam earum quae eo nomine definiuntur [...] quid sit phantasma Hobbii ipse & nobis jam nescire videtur [...].'

⁶⁶ Moranus, *Animadversiones*, 30: 'You might have said that sense is nothing other than a certain kind of motion, but not motion in general' (*Diceret ergo sensionem nihil aliud esse praeter motum talem in specie non autem motum in genere*).

⁶⁷ Hobbes, *De Corpore*, XXV.2, 224; *Concerning Body*, 291.

⁶⁸ Moranus, *Animadversiones*, 30: 'ille motus organi & Phantasma ab illo motu existens; hoc est, ut non Phantasticè tecum sed physicè loquar, configuratio vel sigillatio organi ab obiecti motu & figura sibi occurrente, quare sensio vel sensus est? Certè si nihil aliud sensus est quam motus & configuratio organi à motu illo facta deberent sentire omnia corpora, quae per motum reactionis aliter atque aliter, configurantur & novum reale idolum seu Phantasma accipiunt, adeoque videre deberet cera contra sigillum pressa & sigillata.'

⁶⁹ Hobbes, *De Corpore*, 224; *Concerning Body*, 291.

⁷⁰ Moranus, *Animadversiones*, 30: 'Dices. Conatus est, & non motus tantum. Sed quid est conatus ille nisi motus passivus ab alio item moto corpore, qui etiam in cera est. Dices conatum illum esse motum animae sive vitae etiam corporeae organo coexistentis sive unitae; sed illa anima sive vita quid est aliud quàm corpus, sicut etiam est ipsum organum imò & cera supra à me posita?'

⁷¹ Moranus, *Animadversiones*, 30: 'Unde manet vel sensum esse etiam in cera sigillata; quod non Philosophi, ut inquis, viri docti sed trunci sensuere, illo enim posito & truncus est animal, & animal omne truncus est; vel non esse etiam illum in animâ corporeâ sive vitâ, si sensus nihil aliud est quam motus sive configuratio ipsa

corporis.’ Cf. *ibid.*, 31: ‘you are compelled to acknowledge that this motion by which the phantasm is produced remains for some time in inanimate bodies too, and consequently inanimate bodies too many times collide with each other in a contrary motion, and thus receive phantasms, and sense phantasms, and coming back to this, therefore concluding and recalling what I have said above concerning the trees.’ (*fateri cogaris quod in corporibus etiam inanimatis motus ille a quo phantasma ortum est aliquamdiu maneat & per consequens inanimata quoque corpora quoties motu contrario inter se concurrunt, & ita Phantasma accipiunt, & sentire Phantasma, & hoc quandoque redire, ideoque & judicare & meminisse quod uti supra dixi statuere truncorum est.*)

⁷² This refers to the claim made by Hobbes in the dedicatory epistle of *De corpore*, sig. A3v; *Concerning Body*, sig. [B2]r-v.

⁷³ Moranus, *Animadversiones*, 31-2: ‘Jam te prodere demum incipis & ostendere verum esse quod ante metuebam, ortus phantasmatum hoc est sensionum & sensuum id ipsum est quod animi discursus? & communis ille est hominibus cum brutis? hoccine illud est quod in tua dedicatoria dicebas fecisse te sect. 3. de Cive firmissimis rationibus Verbo divino non repugnante? Nec mirum tibi curatio est, qui hic tam manifestè contradicas verbo divino, loco non uno penitus repugnanti.’

⁷⁴ Moranus, *Animadversiones*, 31-2.

⁷⁵ Moranus, *Animadversiones*, 32: ‘Ubi tu in verbo divino legis aliquid simile de bruto? Et cur quaeso te inter homines tu & bruta distinguis? aut cur ego te jam hominem vocem? si discursus animi per cujus vim homines sumus, praeter sensionem & sensum hoc est ortum Phantasmatum nihil est aliud, & ille brutis si aequè ac tibi communis est? Ego vero homines dicam eos qui veritates etiam insensibiles, cogitant, ut ego cogitare me scio; quibus discursus animi est non ortus Phantasmatum, sed ex principiis aeternae veritatis hoc est lumine divini vultus signato super nos rationalis motus; ut alibi sed hominibus tantum demonstro; paucis tibi ex tuismet principiis dico.’

⁷⁶ Ward, *In Thomae Hobbii Philosophiam*, 257: ‘Castigavit eum hoc nomine Cl[arissimus] Moranus (in *Animadversionibus*) indeque profluentia incommoda ostendit; nolo actum agere, nolo rem ipsam libertatis humane tractare; servavimus initio argumentum hoc integrum Reverendo Bramhallo.” On the Hobbes/Bramhall debate see *Hobbes and Bramhall on Liberty and Necessity*, edited by Vere Chappell (Cambridge: Cambridge University Press, 1999). On Moranus’s criticisms of Hobbes on necessity see Martine Pécharman’s article in this issue.

⁷⁷ John Wallis, *Due Correction for Mr Hobbes or Schoole Discipline, for not saying his Lessons right* (Oxford, 1656), 129.

⁷⁸ Thomas Hobbes, *Six Lessons to the Professors of the Mathematicques* (London: 1656), 57. Hobbes’s attack on Moranus in the *Six Lessons* is mentioned by Simon Schaffer and Steven Shapin in *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985), 126. There are no other references to Moranus in the book.

⁷⁹ Hobbes, *Six Lessons*, 58.

⁸⁰ Hobbes, *Concerning Body*, sig. [A] verso. Hobbes, *De corpore*, ‘Epistola Dedicatoria’, sig. A2v.: ‘Scientiam Humani Corporis, Physicae partem utilissimam, in libris suis de Motu Sanguinis, & de Generatione Animalium, mirabili sagacitate detexit & demonstravit, Gulielmus Harvaeus.’

⁸¹ Hobbes, *Concerning Body*, sig. B recto. Hobbes, *De corpore*, ‘Epistola Dedicatoria’, sig. [A2] verso: ‘Ante hos nihil certi in Physicâ erat praeter experimenta unicuique sua, & Historias Naturales, si tamen & hae dicendae certae sint, quae civilibus Historiis certiores non sunt.’

⁸² Moranus, *Animadversiones*, 3: ‘ipse mihi fassus est, suam de circulari motu sanguinis doctrinam niti tantum experimentis, quae tu quidem asseris nihilo civilibus historiis certiora, ipse autem apud me non satis, etiam coram teste, & illo intelligente, defendit.’

⁸³ Robert Boyle, *An Examen Of the greatest part of Mr. Hobbs’s Dialogus Physicus De Natura Aeris* (Oxford, 1682), 2.

⁸⁴ See Siegmund Probst, ‘Infinity and Creation: The Origin of the Controversy between Thomas Hobbes and the Savilian Professors Seth Ward and John Wallis’, *British Journal for the History of Science* 26 (1993): 271-279, and Siegmund Probst, *Die mathematische Kontroverse zwischen Thomas Hobbes und John Wallis*, PhD Dissertation, University of Regensburg 1997.

⁸⁵ There are no mentions of Moranus, for example, in Samuel I. Mintz’s *The Hunting of Leviathan: Seventeenth-century Reactions to the Materialism and Moral Philosophy of Thomas Hobbes* (Cambridge: Cambridge University Press, 1962) or in Jon Parkin’s more recent *Taming the Leviathan: The Reception of the Political and Religious Ideas of Thomas Hobbes in England 1640-1700* (Cambridge: Cambridge University Press, 2007).